



Metro Nashville
DISTRICT ENERGY SYSTEM

DES Advisory Board Meeting
Second Quarter FY16
February 18, 2016

Agenda

1. Call to Order
2. Review & Approval of Previous Meeting Minutes
3. Customer Sales
4. Review of DES Contractor Performance
5. Natural Gas Purchasing Status
6. FY16 Costs to Date
7. Capital Projects Review & Status
8. Other Board Member Items
9. Adjourn

1. *Call to Order*
2. *Review and Approval of
Previous Meeting Minutes*

3. Customer Sales

- ❖ Table 3: Customer Cost Comparison
- ❖ Figure 3A: Historic DES Expenses, Revenues and MFA
- ❖ Figure 3B: Historic DES Energy Costs

Summary Table 3: Customer Cost Comparison for the Previous 12 Months

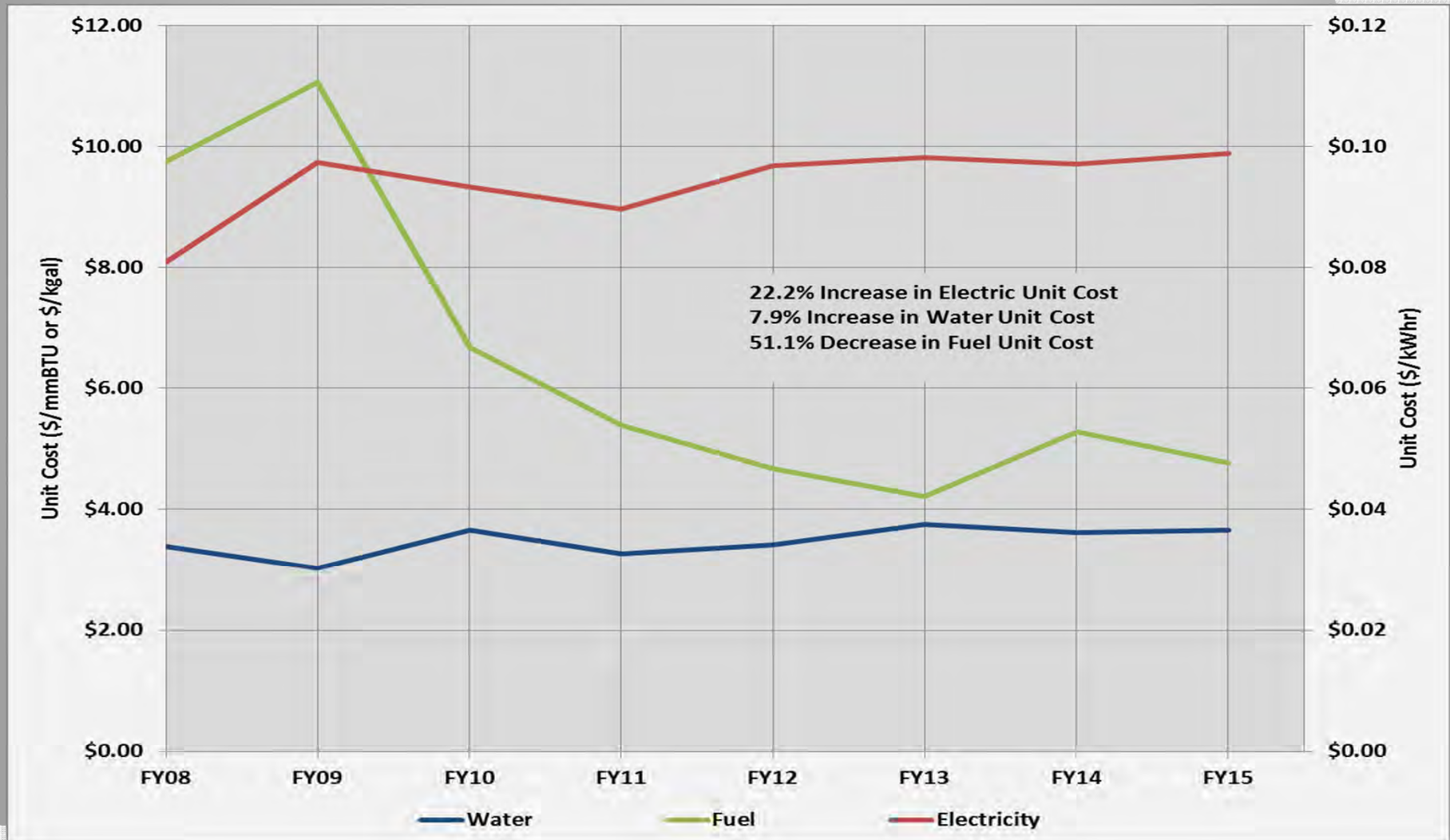
| | | Steam - Rolling 12 Month | | | Chilled Water - Rolling 12 Month | | |
|------------------|-----------------------|--------------------------|---------------------|---------|----------------------------------|---------------------|---------|
| | | Jan 2014 - Dec 2014 | Jan 2015 - Dec 2015 | % Diff. | Jan 2014 - Dec 2014 | Jan 2015 - Dec 2015 | % Diff. |
| Private | Cost | \$ 1,560,909 | \$ 1,424,014 | -8.77% | \$ 3,418,326 | \$ 3,596,042 | 5.20% |
| | Usage (lbs or tonhrs) | 94,403,874 | 87,061,564 | -7.78% | 16,874,237 | 18,147,511 | 7.55% |
| | Unit Cost | \$ 16.53 | \$ 16.36 | -1.1% | \$ 0.203 | \$ 0.198 | -2.2% |
| State | Cost | \$ 2,211,669 | \$ 1,908,412 | -13.71% | \$ 3,315,912 | \$ 3,367,688 | 1.56% |
| | Usage (lbs or tonhrs) | 122,481,519 | 102,080,034 | -16.66% | 14,285,716 | 14,313,369 | 0.19% |
| | Unit Cost | \$ 18.06 | \$ 18.70 | 3.5% | \$ 0.232 | \$ 0.235 | 1.4% |
| Metro | Cost | \$ 2,822,225 | \$ 2,240,299 | -20.62% | \$ 5,559,240 | \$ 5,479,252 | -1.44% |
| | Usage (lbs or tonhrs) | 185,965,300 | 138,581,290 | -25.48% | 28,799,790 | 27,290,066 | -5.24% |
| | Unit Cost | \$ 15.18 | \$ 16.17 | 6.5% | \$ 0.193 | \$ 0.201 | 4.0% |
| Aggregate | Cost | \$ 6,727,020 | \$ 5,697,689 | -15.30% | \$ 12,293,478 | \$ 12,552,072 | 2.10% |
| | Usage (lbs or tonhrs) | 408,785,823 | 333,269,642 | -18.47% | 59,959,743 | 60,312,296 | 0.59% |
| | Unit Cost | \$ 16.46 | \$ 17.10 | 3.9% | \$ 0.205 | \$ 0.208 | 1.51% |

MFA not included in values shown

Figure 3A: Historic DES Expenses, Revenues and MFA






Figure 3B: Historic DES Energy Costs

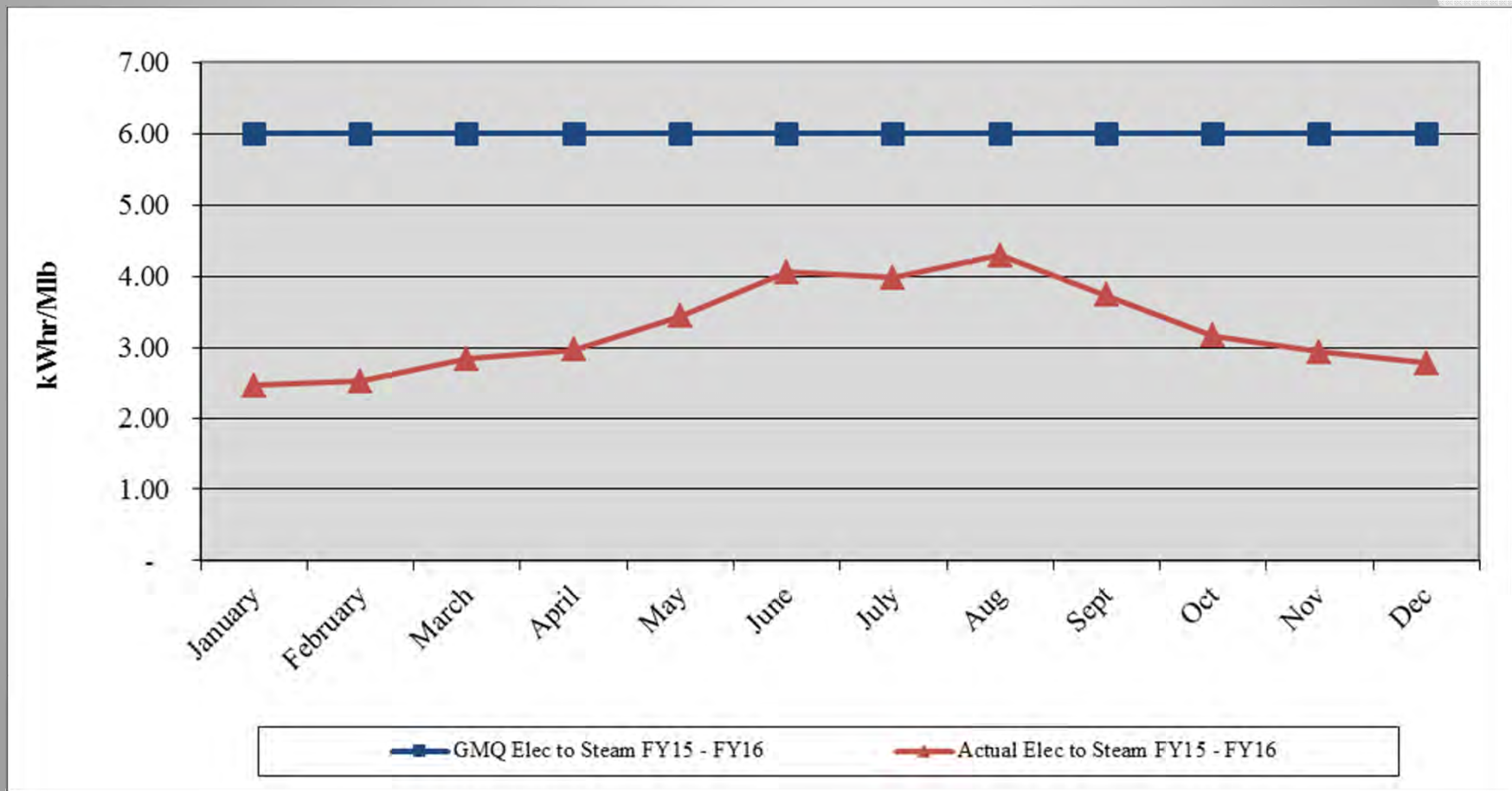


4. Review of DES Contractor Performance

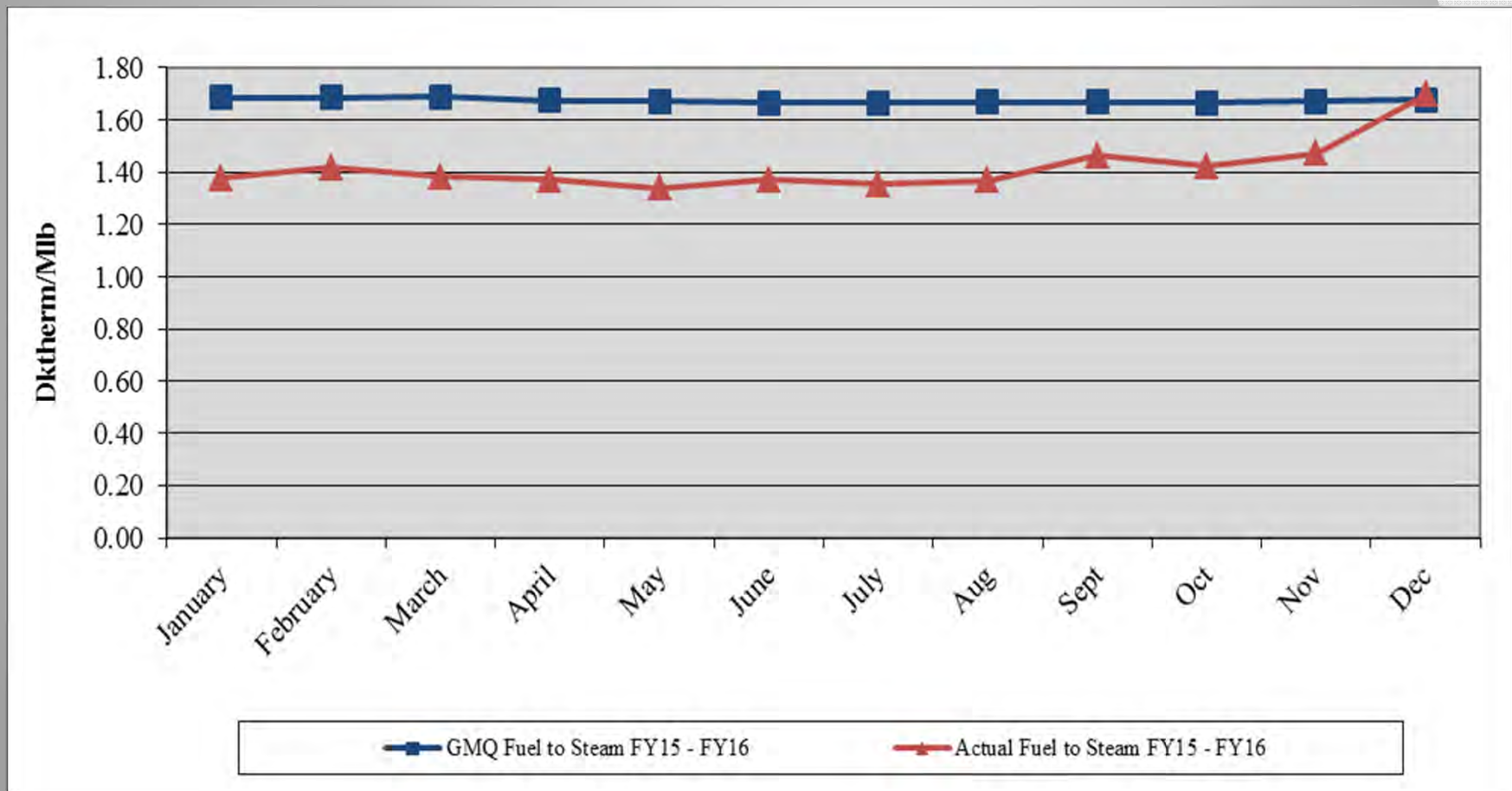
Contractor (CNE) is in compliance with their contractual obligations for FY16.

-  Excellent Performance – No Improvement Necessary
-  Satisfactory Performance – Some Improvement Could Be Made
-  Poor Performance – Much Improvement Necessary

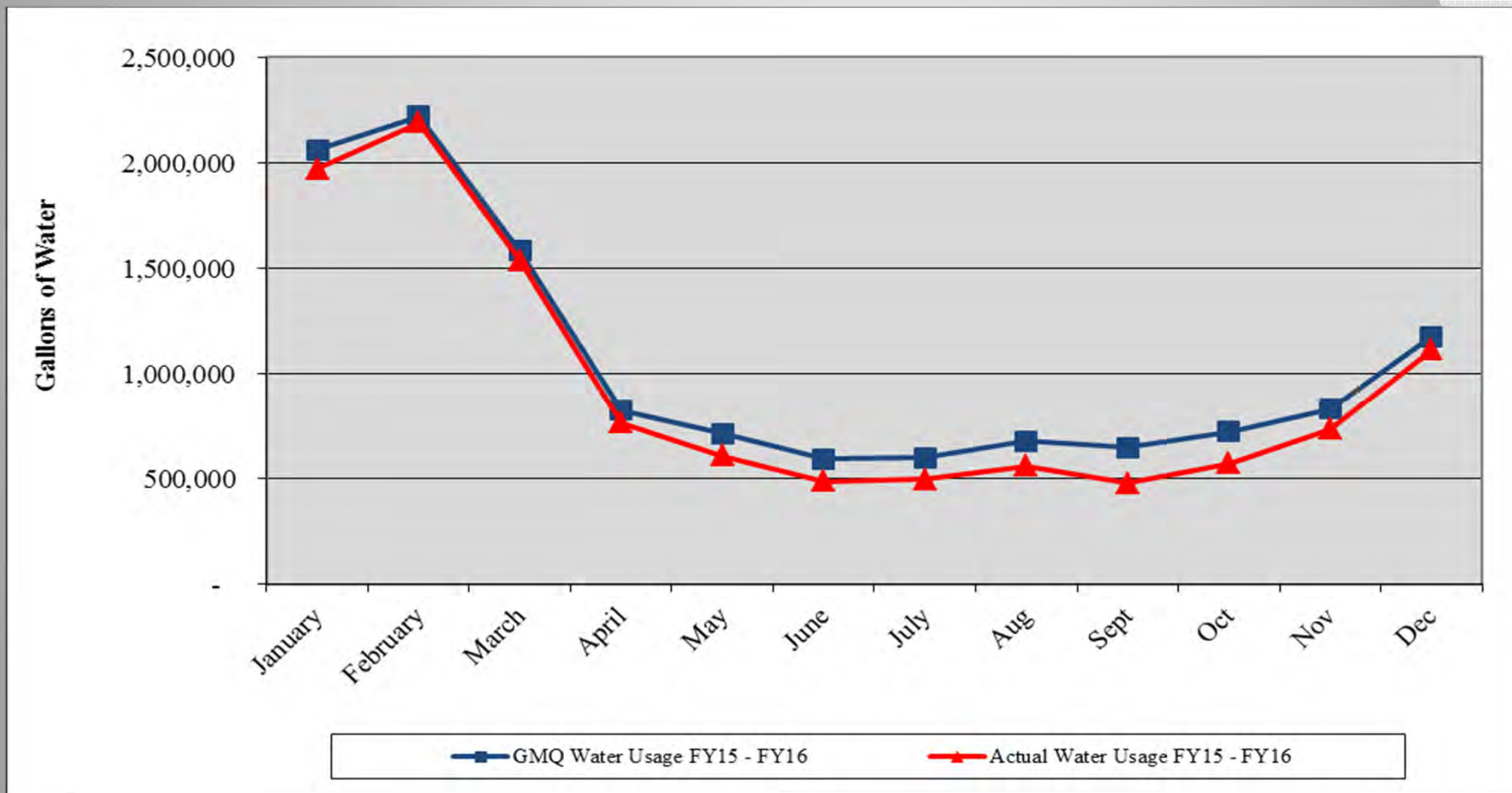
Performance Measurement FY16: Steam Electric Conversion ●



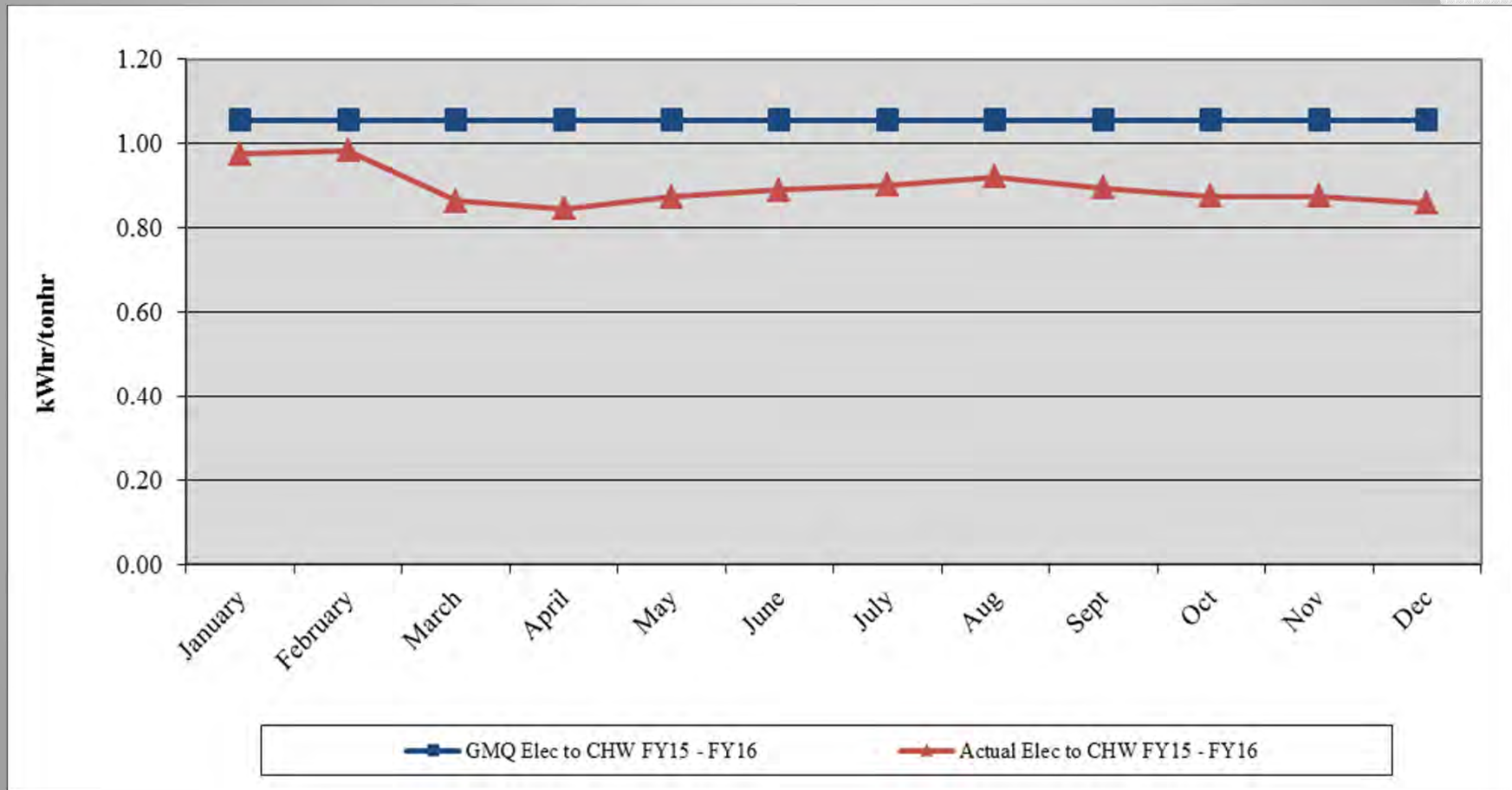
Performance Measurement FY16: Steam Plant Efficiency



Performance Measurement FY16: Steam Water Conversion ●

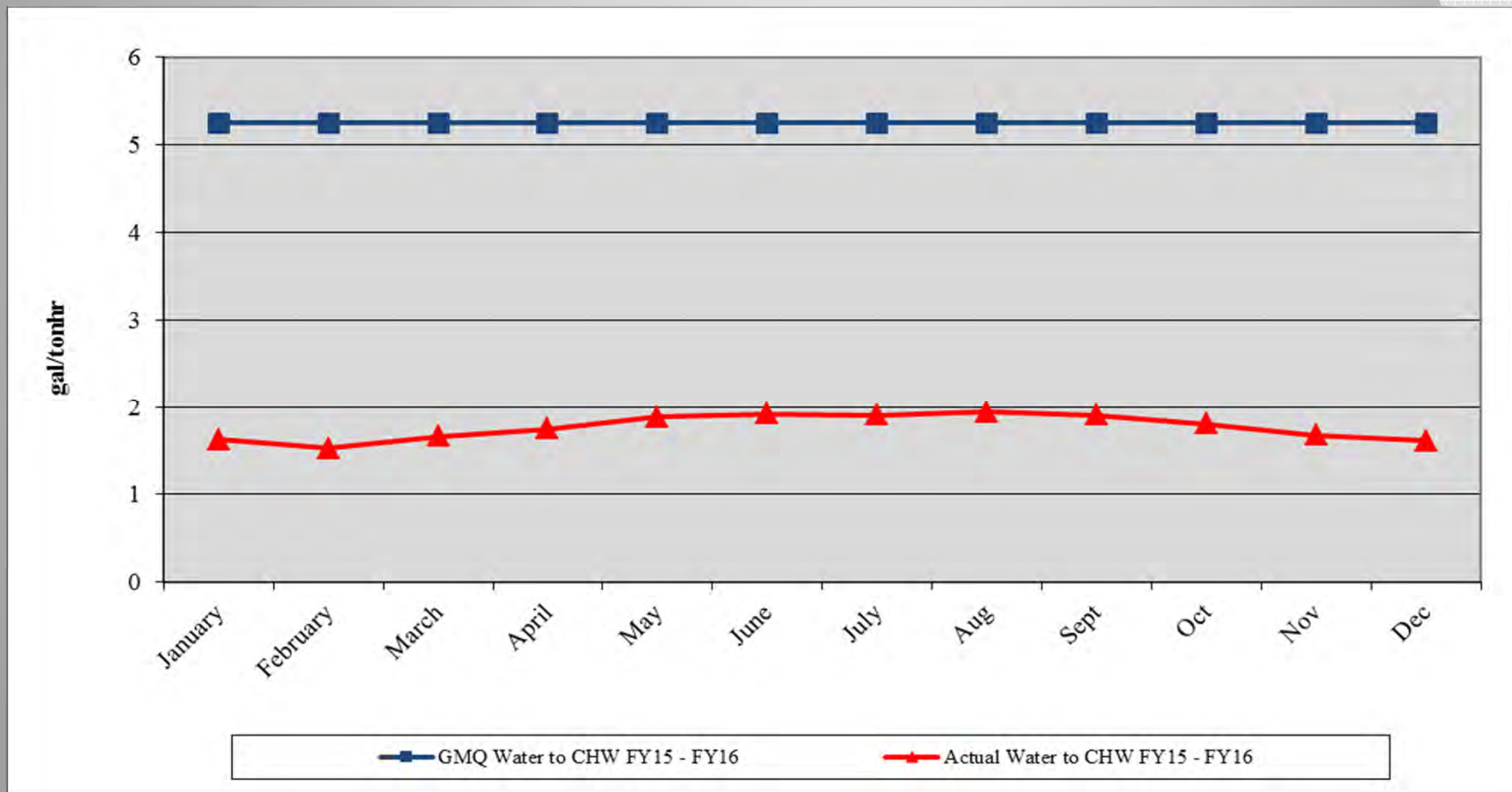


Performance Measurement FY16: CHW Electric Conversion



Performance Measurement FY16: CHW

Water Conversion ●



Water Treatment

- ❖ Steam and Condensate ●
 - ❖ Corrosion
 - ❖ Iron
 - ❖ Hardness
 - ❖ Chlorine/Sulfite
- ❖ Condensing Water ●
 - ❖ Conductivity
 - ❖ Biologicals
- ❖ Chilled Water ●
 - ❖ Hardness
 - ❖ Corrosion
 - ❖ Biologicals
 - ❖ Delta T Issue



EGF Walkthrough

- ✓ Equipment Maintenance ●
- ✓ Operations ●
- ✓ Electrical ●
- ✓ Housekeeping ●
- ✓ Building Structure ●
- ✓ Building Exterior and Grounds ●

EDS Walkthrough

- ✓ Vault/Tunnel Housekeeping ●
- ✓ Maintenance Items ●
 - ✓ Insulation Repair/Replacement ●
 - ✓ Water Infiltration ●
 - ✓ Corrosion of Structural Metal Components ●
- ✓ Safety Items ●

5. Natural Gas Purchasing

- ❖ Natural Gas Purchasing Review
 - ❖ Table 5: FY16 Gas Spending & Budget Comparison
 - ❖ Figure 5: Actual and Projected Gas Cost Comparison

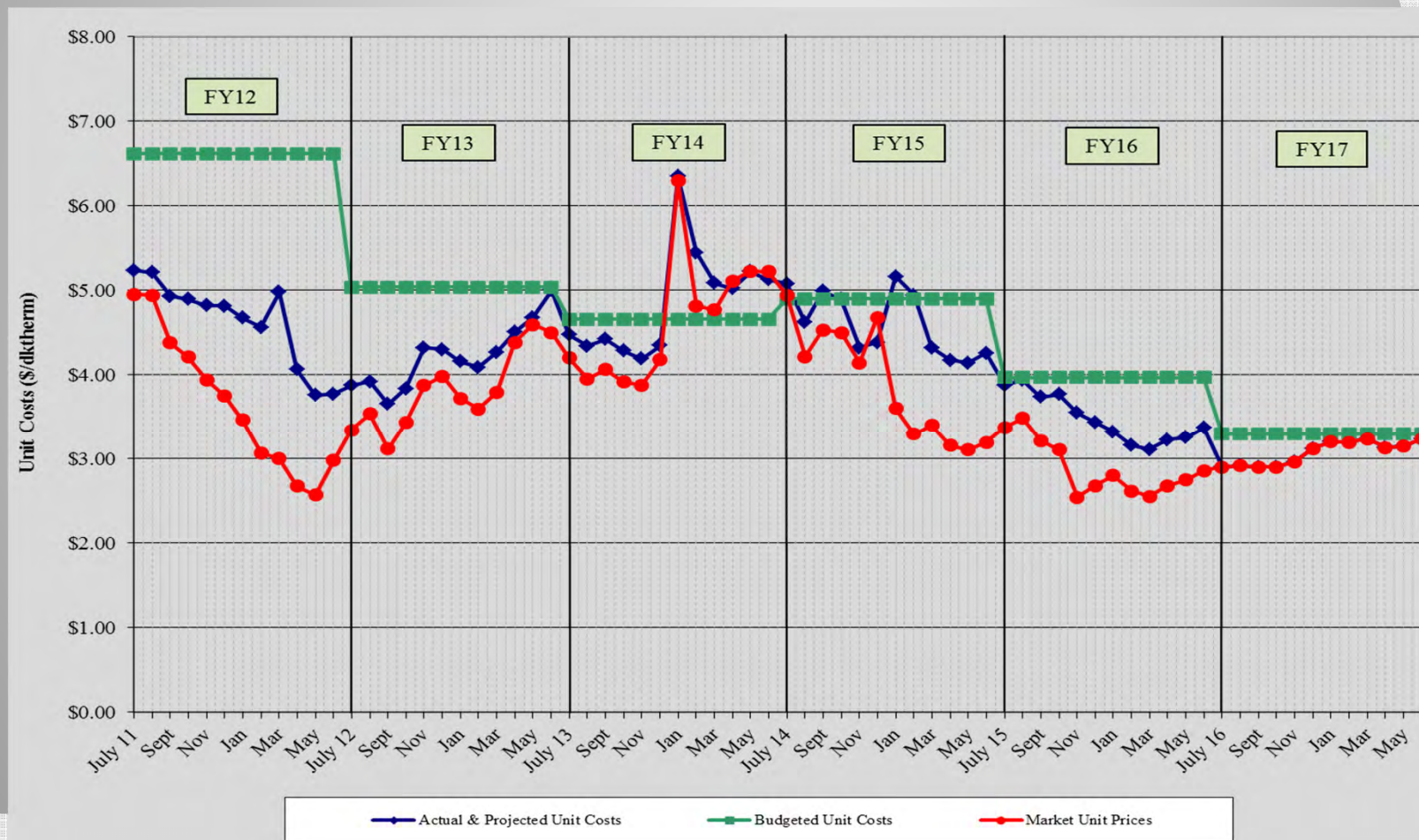
Table 5: FY16 Gas Spending & Budget Comparison

| | | Actual FY16 To date (Dec 31) | Budget FY16 | Percent Difference |
|--------------------------------------|---|---------------------------------|----------------|-----------------------|
| Steam Sendout (Mlbs) | | 156,099 | 206,050 | -24.2% |
| Fuel Use (Dth) (includes propane) | ● | 233,175 | 282,700 | -17.5% |
| Plant Eff (Dth/Mlb) | ● | 1.494 | 1.372 | 8.9% |
| Total Gas Cost (includes propane) | ● | \$942,182 | \$1,180,004 | -20.2% |
| Unit Cost of Fuel (\$/Dth) | ● | \$4.041 | \$4.174 | -3.2% |

Excludes consultant fees and FEA and budget contingency;

Includes transportation and propane costs (\$70,000 pre-purchased propane)

Figure 5. Actual and Projected Gas Cost Comparison History



6. FY16 Costs to Date

| Item | FY15 Actual | FY16 Budget | FY16 Actual to date | Percent of FY16 Budget |
|-----------------------------|----------------------|----------------------|----------------------|------------------------|
| FOC's | \$ 4,532,100 | \$ 4,668,200 | \$ 2,266,000 | 48.54% |
| Pass Throughs | | | | |
| Non-Energy | \$ 1,249,000 | \$ 1,069,500 | \$ 480,700 | 44.95% |
| Water/Sewer | \$ 509,000 | \$ 745,400 | \$ 319,700 | 42.89% |
| Natural Gas Base | \$ 2,897,000 | \$ 2,832,858 | \$ 946,600 | 33.42% |
| Natural Gas Contingency | \$ - | \$ 555,142 | \$ - | 0.00% |
| Electricity | \$ 5,459,700 | \$ 6,545,700 | \$ 3,386,100 | 51.73% |
| ORF Deposit | \$ 600 | \$ - | \$ - | |
| Debt Service | \$ 5,646,000 | \$ 5,565,900 | \$ 2,702,200 | 48.55% |
| Total Expenses | \$ 20,293,400 | \$ 21,982,700 | \$ 10,101,300 | 45.95% |
| Total Revenues | \$ 18,425,800 | \$ 20,188,200 | \$ 9,507,300 | 47.09% |
| Metro Funding Amount | \$ 1,867,600 | \$ 1,794,500 | \$ 897,250 | 50.00% |

FY16 Budget

| Item | FY15 Budget | FY16 Budget | Percent Change |
|-----------------------------|----------------------|----------------------|----------------|
| FOC's | \$ 4,606,800 | \$ 4,668,200 | 1.33% |
| Pass Throughs | | | |
| Non-Energy | \$ 1,041,300 | \$ 1,069,500 | 2.71% |
| Water/Sewer | \$ 724,600 | \$ 745,400 | 2.87% |
| Natural Gas Base | \$ 3,121,940 | \$ 2,832,858 | -9.26% |
| Natural Gas Contingency | \$ 635,260 | \$ 555,142 | -12.61% |
| Electricity | \$ 6,574,600 | \$ 6,545,700 | -0.44% |
| ORF Deposit | \$ 600 | \$ - | -100.00% |
| Debt Service | \$ 5,645,900 | \$ 5,565,900 | -1.42% |
| Total Expenses | \$ 22,351,000 | \$ 21,982,700 | -1.65% |
| Total Revenues | \$ 20,501,500 | \$ 20,188,200 | -1.53% |
| Metro Funding Amount | \$ 1,849,500 | \$ 1,794,500 | -2.97% |

7. Capital Expenditure Update

| | Spent to End of FY15 | FY16 Spending | Balance to Date (12/31/15) |
|-----------------------------------|---------------------------------|--------------------------|---------------------------------------|
| R&I Projects | \$2,579,384 | \$164,558 | \$31,161 |
| 49109-2010 Bond | \$2,309,419 | \$90,480 | \$242,656 |
| 49107-Customer Connection Fund | \$6,711,621 | \$17,745 | \$1,770,634 |
| 49116-DES CHP and EDS Projects | \$0 | \$81,802 | \$30,693,198 |
| Total | \$11,600,424 | \$349,707 | \$32,737,649 |

Capital Projects Review

Active Capital Projects

- DES 061: MH & Tunnel Steel Corrosion Repair & Prevention – Ongoing
- DES 104: TOU – CNE Implementing Program (anticipate completion for FY17)
- DES 110: EGF Alternate Fuels Evaluation – Propane Acquisition Plan and 2nd Propane Tank
- DES 111: EGF Combined Heat and Power – Engineer Selected
- DES 119: Chilled Water System Delta T – Equipment Installed

Capital Projects Review

Capital Projects in Close-out

- DES 112: Condensate Return Piping Replacement Cordell Hull Building
- DES 117: Manhole S5 Repairs

8. Other Board Member Items

9. Adjourn

- *Advisory Board Meeting Schedule*
- FY16 – 3rd Quarter Meeting – May 19, 2016
- FY16 – 4th Quarter Meeting – August 18, 2016
- FY17 – 1st Quarter Meeting – November 17, 2016
- FY17 – 2nd Quarter Meeting – February 16, 2017